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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 34560.2-2017

**Structural steels -- Part 2: Technical delivery conditions for
structural steels for general purposes
(English Translation)**

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1 Scope

This Part of GB/T 34560 specifies the terms and definitions, classification and grade representation method, ordering content, dimension, shape, weight, technical requirements, test methods, inspection rules, packaging, marking and quality certificate of structural steels for general purposes.

This Part applies to hot-rolled steel plates (strips), wide flat steels, section steels and steel bars (hereinafter referred to as "steel") for general welded, bolted and riveted engineering structures.

The chemical composition specified in this Part also applies to steel ingots, continuous casting billets, steel billets and their products.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 222 Permissible tolerances for chemical composition of steel products

GB/T 223.3 Methods for chemical analysis of iron, steel and alloy - The diantipyryl methane phosphomolybdate gravimetric method for the determination of phosphorus content

GB/T 223.9 Iron, steel and alloy - Determination of aluminium content -

Chrom azurol S photometric method

GB/T 223.11 Iron, steel and alloy - Determination of chromium content -

Visual titration or potentiometric titration method (GB/T 223.11-2008, ISO 4937.1986, MOD)

GB/T 223.14 Methods for chemical analysis of iron, steel and alloy - The N-benzoyl-N-phenylhydroxylamine extraction photometric method for the determination of vanadium content

GB/T 229 Metallic materials - Charpy pendulum impact test method (GB/T 229-2007, ISO 148-1.2006, MOD)

GB/T 232 Metallic materials - Bend test (GB/T 232-2010, ISO 7438.2005, MOD)

GB/T 247 General rule of package, mark and certification for steel plates (sheets) and strips

GB/T 2101 General requirement of acceptance, packaging, marking and certification for section steel

GB/T 2975 Steel and steel products - Location and preparation of test pieces for mechanical testing (GB/T 2975-1998, eqv ISO 377.1997)

GB/T 4336 Carbon and low-alloy steel - Determination of multi-element contents - Spark discharge atomic emission spectrometric method (routine method)

GB/T 5313 Steel plates with through-thickness characteristics

GB/T 13304.1 Steels classification - Part 1. Classification of according to chemical composition (GB/T 13304.1-2008, ISO 4948-1.1982, MOD)

GB/T 20066 Steel and iron - Sampling and preparation of samples for the determination of chemical composition (GB/T 20066-2006, ISO 14284.1996,

IDT)

GB/T 20123 Steel and iron - Determination of total carbon and sulfur content

- Infrared absorption method after combustion in an induction furnace (routine method) (GB/T 20123-2006, ISO 15350.2000, IDT)

GB/T 20125 Low-alloy steel - Determination of multi-element contents -

Inductively coupled plasma atomic emission spectrometric method

GB/T 34560.1 Structural steels - Part 1. General technical delivery condition for hot-rolled products (GB/T 34560.1-2017, ISO 630-1.2011, MOD)

3 Terms and definitions

For the purpose of this document, the terms and definitions defined in GB/T 34560.1 apply.

4 Classification and grade representation method

4.1

According to the classification of GB/T 13304.1, the steel in this Part is non- c) calculation formula for carbon equivalent (CEV) or weld crack sensitivity index (Pcm);

- d) mechanical properties after additional heat treatment;
- e) through-thickness characteristics;
- f) bending properties;
- g) chemical analysis method;
- h) frequency of tests;
- i) direction of impact test specimen;
- j) packaging and marking;
- k) appropriate hot dip galvanizing method agreed upon under relevant standards;
- l) non-destructive testing agreed upon under relevant standards.

6 Dimension, shape, weight

The dimension, shape, weight and permissible deviation of steel shall comply with the specifications of GB/T 34560.1.

7.1.1 The chemical composition (smelting analysis) of Q235, Q275, Q355 and

Q450 steel grades shall comply with the specifications of Table 1. The chemical composition (smelting analysis) of Q390, Q420 and Q460 grades shall comply with the specifications of Table C.1 in Annex C.

7.1.2 When adding elements other than those in Table 1 or Table C.1 to steel, it shall be indicated in the quality certificate.

7.1.3 The residual elements of chromium, nickel and copper in steel shall be not more than 0.30 %.

7.1.4 The content of nitrogen in steel shall comply with the specifications of Table 1 or Table C.1. If guaranteed by the supply party, the nitrogen content analysis may

be exempted. If the content of Als in steel is not less than 0.015 % or the content of Alt is not less than 0.020 %, or other alloying elements with

9.1 Inspection and acceptance

The inspection and acceptance of steel shall be carried out by the supplier's quality and technical supervision department, and the buyer shall have the right to inspect and accept any of the inspection items specified in this Part or the contract.

9.2 Batching

9.2.1

The steel shall be accepted in batches. Each batch shall consist of steel of the same grade, the same furnace number, the same specification, the same rolling system and the same delivery status. When batching by furnace, the weight of each batch shall not be more than 60 t. For section steels smelted in a converter with a volume greater than 200 t, the weight of each batch shall not be more than 80 t. Steel strips and continuous rolled plates, sheets with a volume of more than 30 t may be combined into one batch as two rolling rolls.

Agreed upon between the supply and demand parties, it may inspection 2 batches per furnace.

9.2.2

For grade A steels or grade B steels, it allows batches consist of steels of the same grade, the same smelting and pouring method, the same delivery status, and different furnace numbers, but not more than 6 furnace numbers per batch. For each furnace number in each batch, the difference of carbon content of shall not exceed 0.02 %, and the difference of manganese content shall not exceed 0.15 %.

9.2.3

The batching of through-thickness mechanical property test shall comply with the specifications of GB/T 5313.

9.3 Reinspection and determination rules

The reinspection and determination rules of steel shall comply with the specifications of GB/T 34560.1.

10 Packaging, marking and quality certificate

The packaging, marking and quality certificate of steel shall comply with the specifications of GB/T 247 or GB/T 2101.

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